6. Technical point

3) The water level data at each course

unit:Khz

Course \ Water level		Default water level(khz)		Supplemetary water START(Khz)	Supplemetary water end(khz)
Cotton	Washing	23.50		24.00	23.70
	Rinse	large	22.45	24.00	23.50
		middle	22.80		
		small	23.30		
Synthetics	Washing	23.50		24.00	23.70
	Rinse	22.45		24.00	23.50
Delicates	Washing	22.80		23.55	23.35
	Rinse	22.65		23.55	23.35
Quick	Washing	23.50		24.00	23.70
	Rinse	22.45		24.00	23.50

4) The other water level data

The water data unter each conditon		
1st water supply (only preparation)	24.60	1st water supply level to washing tub
Overflow error	20.50	The water supplied reach 2/3 of door
Bubble detectingatwashing/rinse/dehydrating	25.45	Bubble -detecting water level
Bubble detecting rinse water level	22.00	The water level which can detect bubblesunit:Khz
Water level which can open door	23.80 over	It is possible to open the door
Water level which can drive heater	24.50	Safety water level of wash heater
Water level which can reset the drain	24.50	The water level can be detected after 1st draining

※ If water level is 15KHZ below or 30 KHZ above , sensor-pressur is out of order so needs changing.

7. General Error Function

When an error occurs, this function starts to keep generating error melody sounds and displays error indicators as shown in the followings per corresponding error by blinking in 0.5sec interval until the error status is completely cleared out. In this case, all the driving devices are turned off until the error is cleared out.

○ : Light on
● : Light off

1. WATER SUPPLY ERROR
- Display shows such as fig. 1
- Water Supply Error occurs when water level frequency does not show changes more than 100Hz or water is not supplied up to the water level presetting for 20 min or more at the time of initial water supply.
- The error status can be cleared by turning POWER S/W OFF and resuming the POWER ON initial status.

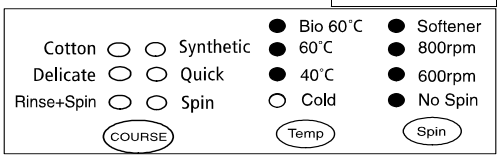


fig. 1

2. WATER DRAIN ERROR
- Display shows such as fig.2
- In case the water level frequency is 24.5KHz or less in the initial phase of UNB-detecting cycle.
- Water Drain error can be cleared by turning POWER S/W OFF and resuming the POWER ON initial status.

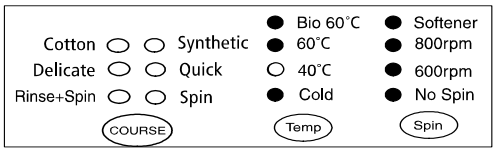


fig. 2

3. OVER-FLOW ERROR
- Display shows such as fig.3
- Over-Flow error occurs when the water level is in abnormal operation. It can be cleared by turning POWER S/W OFF. Water is drained prior to POWER S/W OFF and it is forced to be drained for 2 min if a frequency of more than 24.5 KHz is detected.

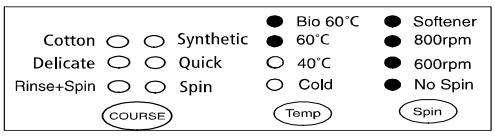


fig. 3

4. UNBALANCE ERROR
- Display shows such as fig4.
- Laundry load is unbalanced; loosen any tangled laundry.
- If only one item of clothing needs washing, such as a bathrobe or jeans, the final spin result might be unsatisfactory and an error message will be shown in the display panel such as fig 4..
- Unbalance error is cleared by POWER S/W OFF and by resuming the POWER ON initial status.

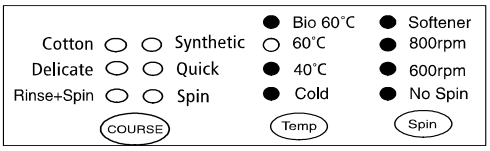


fig. 4

5. WATER HEATER ERROR
- Display shows such as fig.5 or fig.6
- In case the water temperature rises by 7° C or more in 1 min. or by 2° C less in 10 min after heating is started.
- It can be cleared by turning POWER S/W OFF.

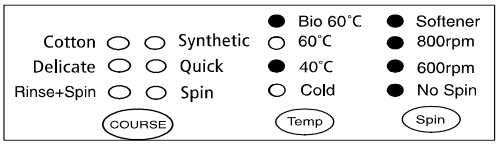


fig. 5

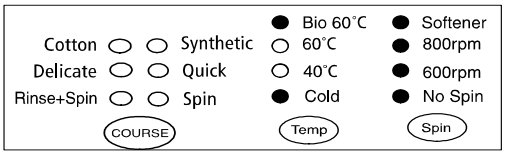


fig. 6

6 DOOR OPEN ERROR
- Display shows such as fig.7
- Door Open error can be cleared by closing the door.

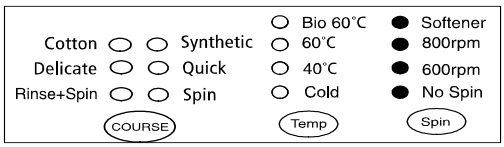


fig. 7

7. ASS' Y PRESSURE S/W ERROR

* Generated Frequency Signal of WATER LEVEL(W/L) S/W (KHz)

Level	Low Level	High Level
Abnormal W/L Frequency	30.00 KHz	15.00 KHz

7. General Error Function

- If the same signal as the above table is detected for more than 5 seconds, it is a PRESSURE S/W Error.
- When the error occurs, water drain pump will operate for 3 min. and then turn off the water drain pump.
  Then the display shows fig. 8 indicating a pressure s/w error indicator.

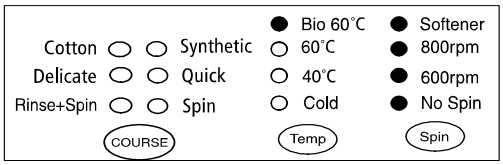


fig. 8

8. ABNORMAL WATER TEMPERATURE ERROR

- In case the water temperature is 50°C or more in Delicate and Wool course.
- At the time of initial water supply, if the water temperature is not appropriate, water starts to be drained and it is forced to be drained for 2 min when the abnormal frequency of 24.5KHz is detected.
- Display shows fig. 9
- This error can be cleared by POWER S/W OFF.

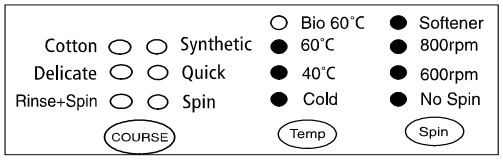


fig. 9

9. WATER LEAKAGE ERROR (E9)

- Water Leakage error occures when water is drained naturally after washing program starts.

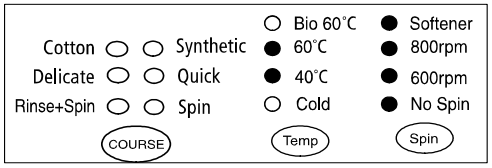


fig. 10

10. Tacho Error

- This error occurs in case motor thaco is out of order or tacho siganals inputted are fewer than 2
- Display shows fig. 11
- This error can be cleared by power s/w off

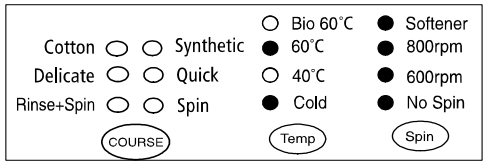


fig. 11

11. Motor Triac short Error

- This error occurs in case over 300 per 1 sec tacho signals are inputted power S/w should be off.
-fig. 12 is diplayed.
- This error can be cleared by power s/w off

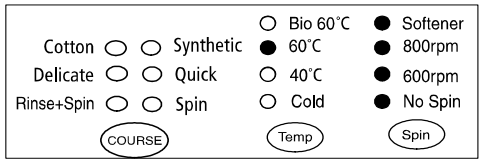


fig. 12

12. Thermistor error

- This error occurs, when Thermistor circuit is abnormal or the detected electrical volt is 0.2v below or 4.5v over
- fig. 13 is displayed
- This error can be cleared by power s/w off

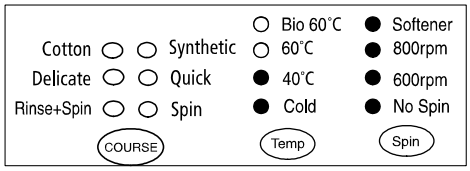


fig. 13

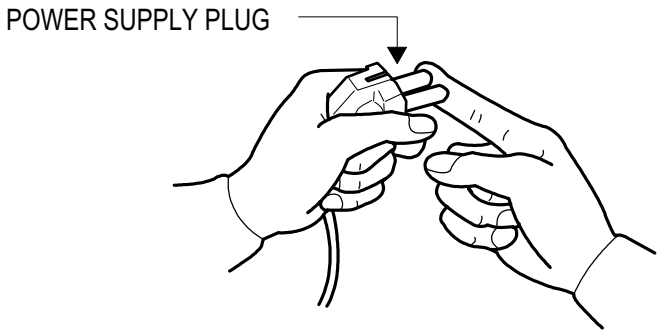
8. Trouble Diagnosis

- As the micom wash machine is configured of the complicate structure, there might be the service call. Below information is prepared for exact trouble diagnosis and suitable repair guide.

Caution for the Repair and Replacement

Please follow below instruction for the trouble diagnosis and parts replacement.

1) As some electronic components are damaged by the charged static electricity from the resin part of wash machine or the human body, prepare the human body earth or remove the potential difference of the human body and wash machine by contacting the power supply plug when the work contacting to PCB is executed.



2) Since AC220~240V is applied to the triac T1 and T2 on P.C.B, the electric shock may occur by touching and be careful that the strong and weak electricity are mixed.

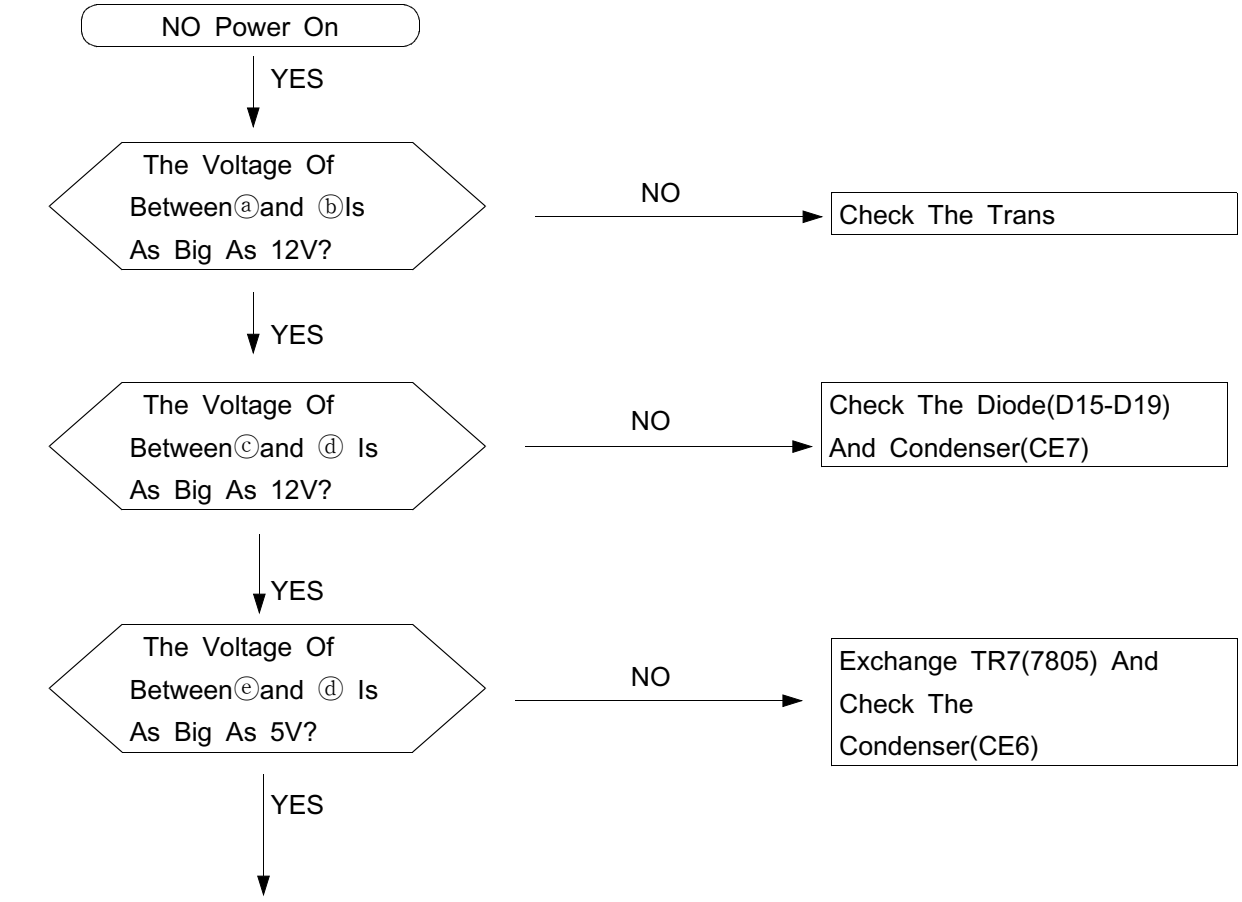
3) As the P.C.B assembly is designed for no trouble, do not replace the P.C.B assembly by the wrong diagnosis and follow the procedure of the trouble diagnosis when the micom is not operated normally.

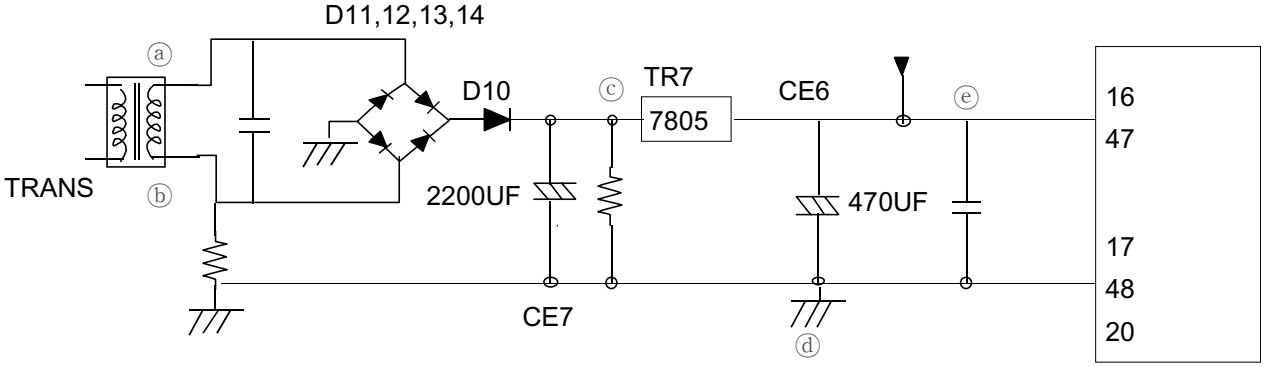
8-1. Trouble Diagnosis

No	Item	Cause and treatment
1	The power is not supplied	- Is the PCB connector connected well? - Is the voltage normal? - Is the power supply plug connected well? - Is the noise filter connected well? - Is the secondary output of the power supply transformation normal? - Is the fuse disconnected? (option) • If above points are not found, the PCB assembly is out of order. Replace it.
2	The water is not supplied.	- Is the knob open? - Did you push START/PAUSE button after selecting the course? - Is the water supply valve connected well? - Is the winding of the water supply valve continuous? - Is the connection and operation of the pressure switch normal? • If above points are not found, the PCB assembly is out of order. Replace it.
3	The wash does not start though the water supply is stopped.	- Is the connection and operation of the pressure switch normal? - Is the pressure switch hose damaged so that the air is leaked? - Is the pressure switch hose bent? - Check the operation of the water level switch. • If above points are not found, the PCB assembly is out of order. Replace it.
4	The drum does not rotate during washing.	- Is the belt connected well? - Is the winding of the motor continuous? (Rotor winding, stator winding, generator) - Is the motor protector normal? • If above points are not found, the PCB assembly is out of order. Replace it.
5	The drum rotates by one direction during washing. (The drum rotates to one direction for SPIN.)	- The PCB assembly is out of order. Replace it. (Inversion relay open trouble)
6	Drainage problem.	- Is the drainage hose bent? - Is the winding of the drainage pump continuous? - Is the drain filter clogged by the waste? • If above points are not found, the PCB assembly is out of order. Replace it.
7	Dehydration problem.	- The unbalance is detected. - Put in the laundry uniformly and start again.
8	Abnormal noise during SPIN.	- Is the pulley nut loosen? - Is the transport safety device removed? - Is the product installed on the level and stable place? (Little noise may be generated during the high-speed SPIN.)
9	Leak breaker or current/leak breaker is down during washing.	<When the leak breaker and current breaker is installed separately> - When the leak breaker is down, check and make the earth of the outlet. - When the current is down, the current is leaked. <Is the breaker down when the leak/current breaker is combined?> - Check the rated capacity of the current and leak breaker. The current breaker may be down due to the lack of the current when the wash machine and other apparatus are used. In this case, execute the cold water wash to check whether the current capacity is lack.
10	The heating is not executed.	- Is the wash heater terminal unplugged? - Is the wash heater normal? - If above points are not found, the PCB assembly is out of order. Replace it.

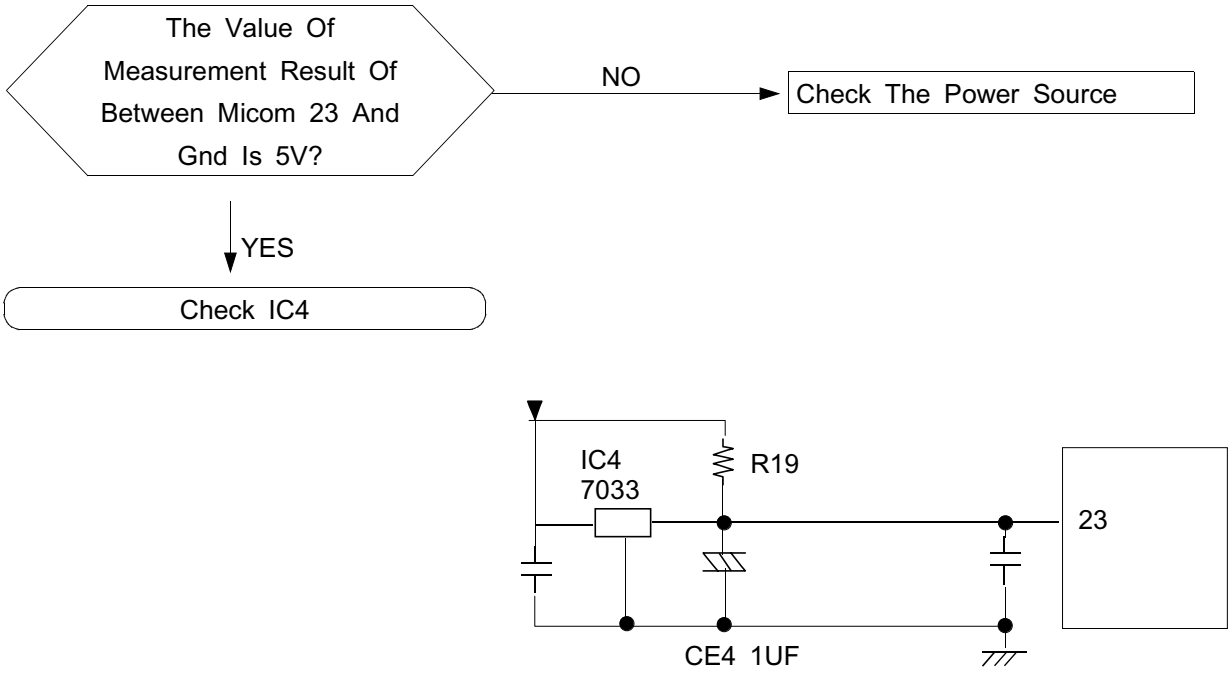
8-2 . Problem Checkking And Method Of Pcb

8-2-1 The Part Of Power Source

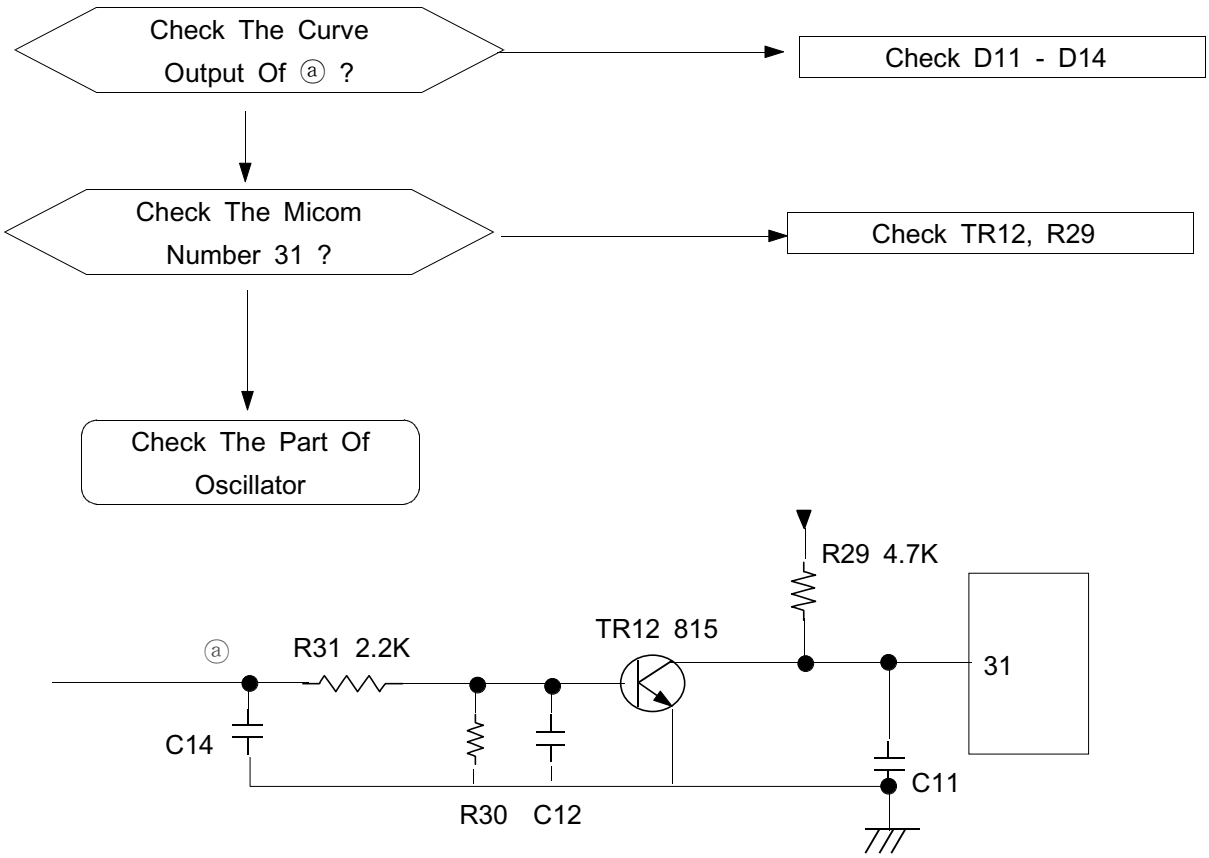

NO Power On
YES
The Voltage Of Between ⓐ and ⓑ Is As Big As 12V?
NO
Check The Trans
YES
The Voltage Of Between ⓒ and ⓓ Is As Big As 12V?
NO
Check The Diode(D15-D19) And Condenser(CE7)
YES
The Voltage Of Between ⓔ and ⓓ Is As Big As 5V?
NO
Exchange TR7(7805) And Check The Condenser(CE6)
YES



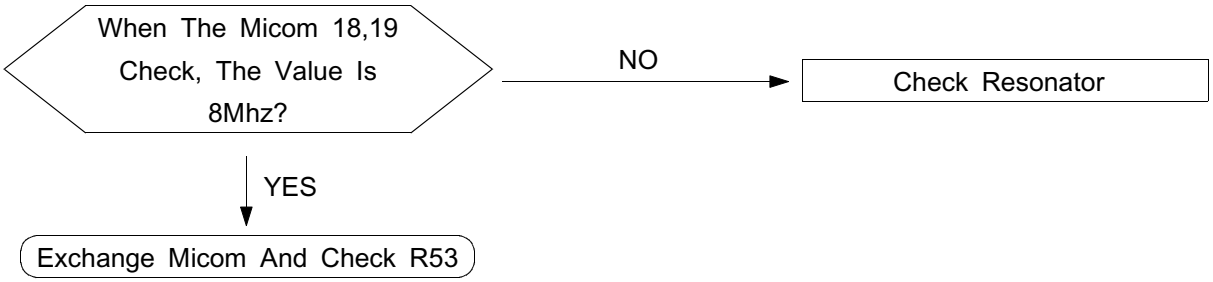
8-2-2. Reset Part

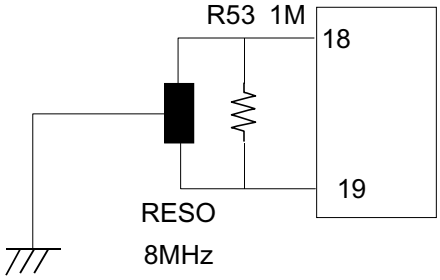


8-2-3. Interrupt Part



8-2-4. Checking The Part Of An Oscillator

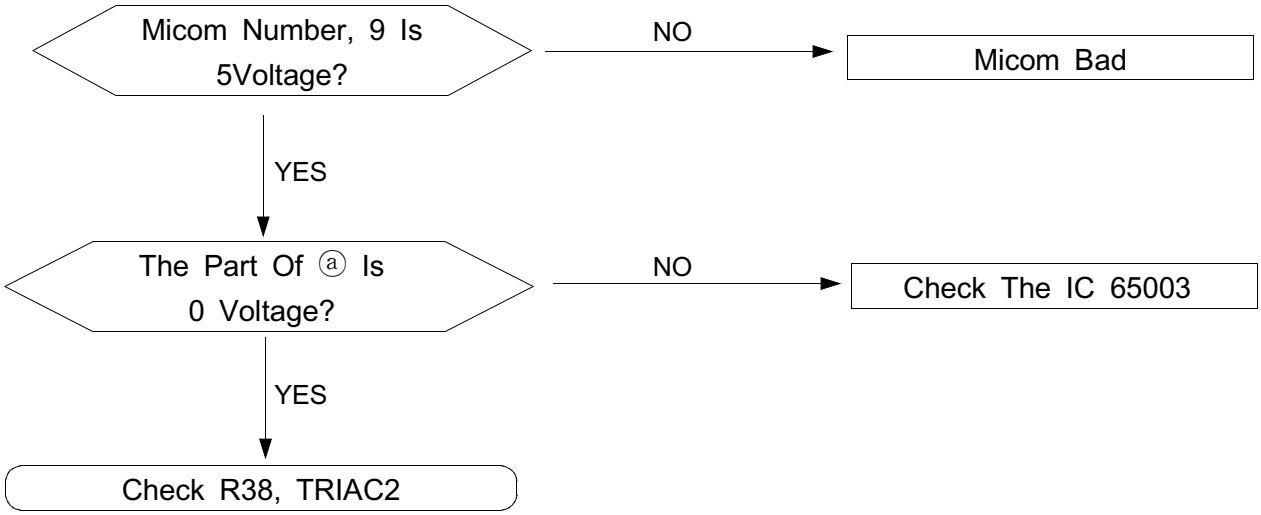


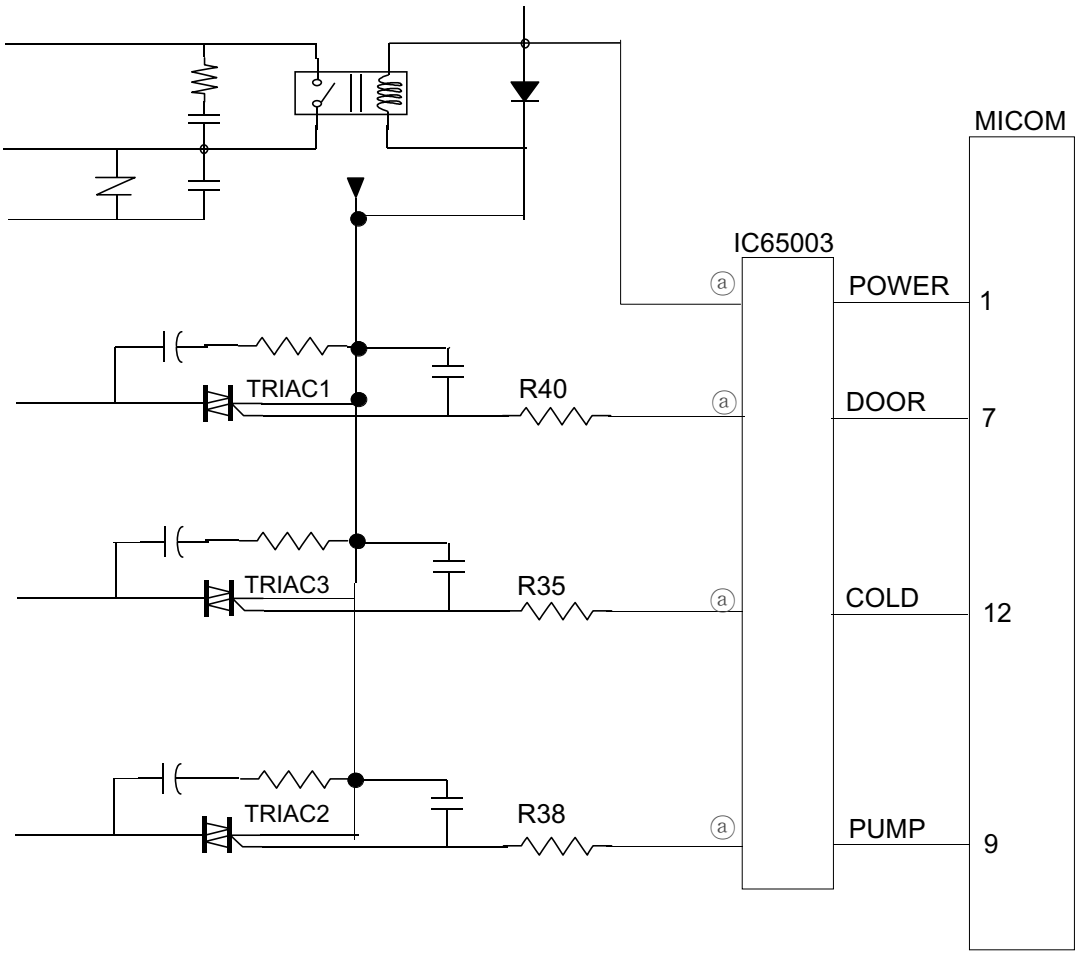


8-2-5. Driving Part Checking

◆ **Confirm The Output Of DC5V, When The Every Part Of Micom Number Check, According To The Some Problem Condition**

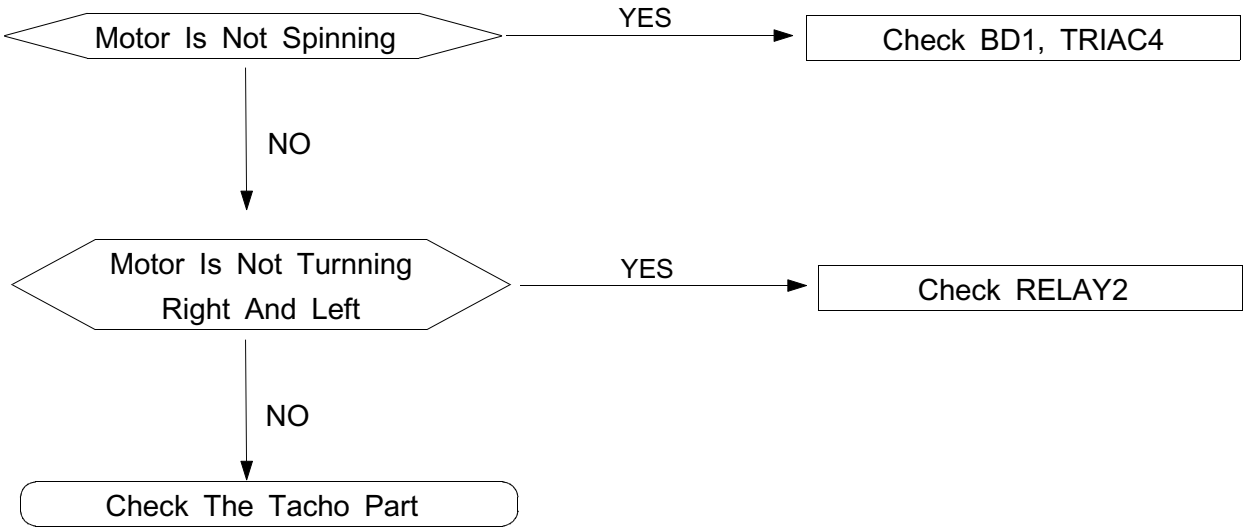
ex) When The Drain Is Not Operating But Pump Motor Is Operating, Check The 5Voltage Of Micom

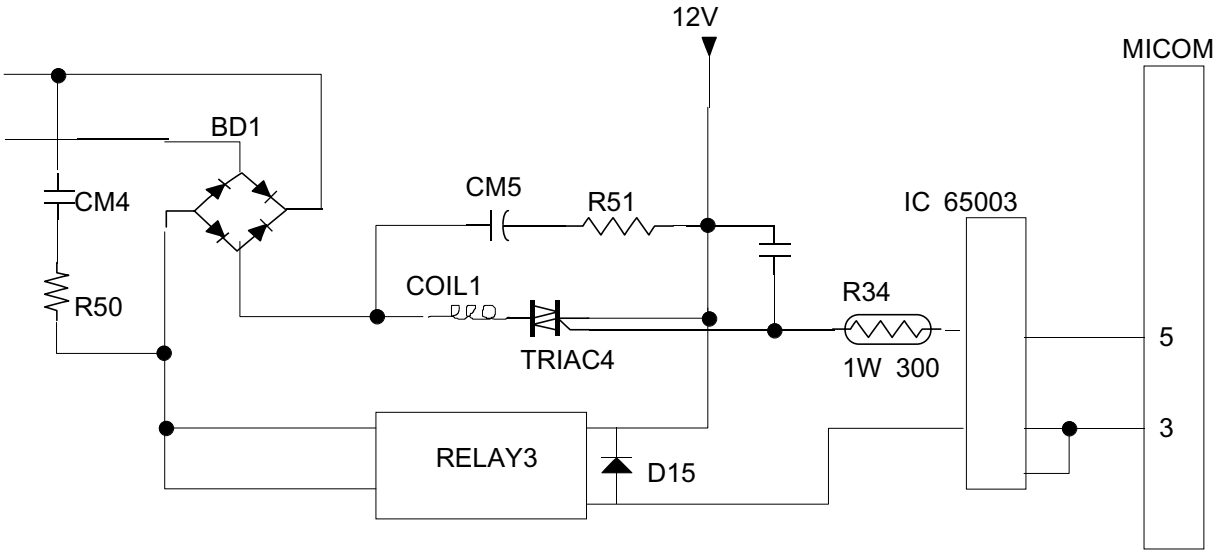




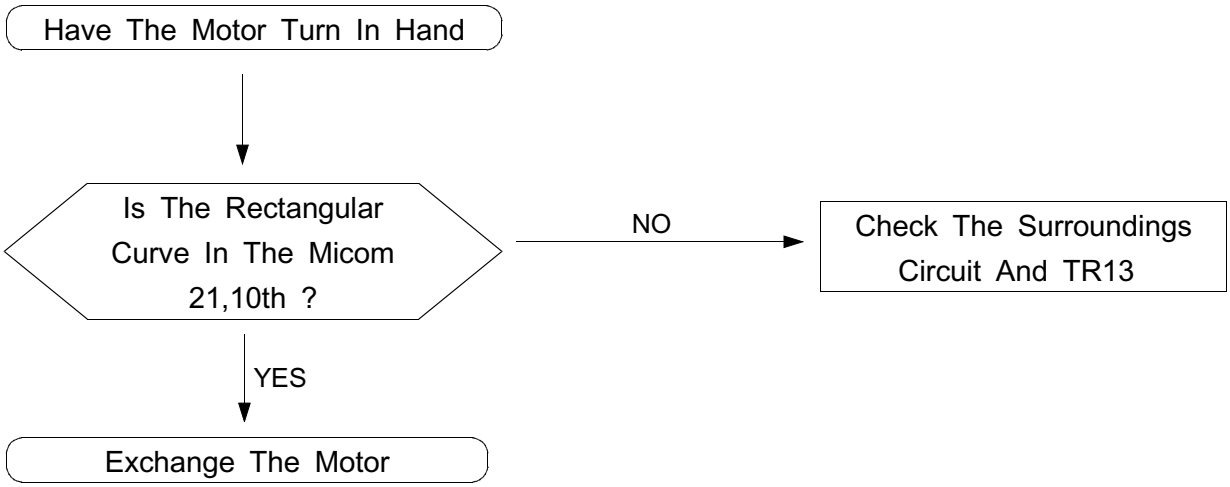
※ Check The Micom 12th In The Above Method When The Cold Water Is Bad

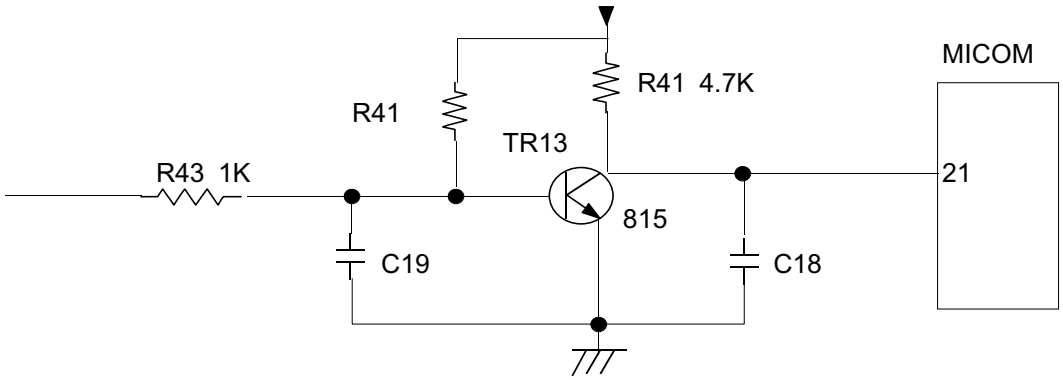
8-2-6. Confirm The Driving Part Of Motor



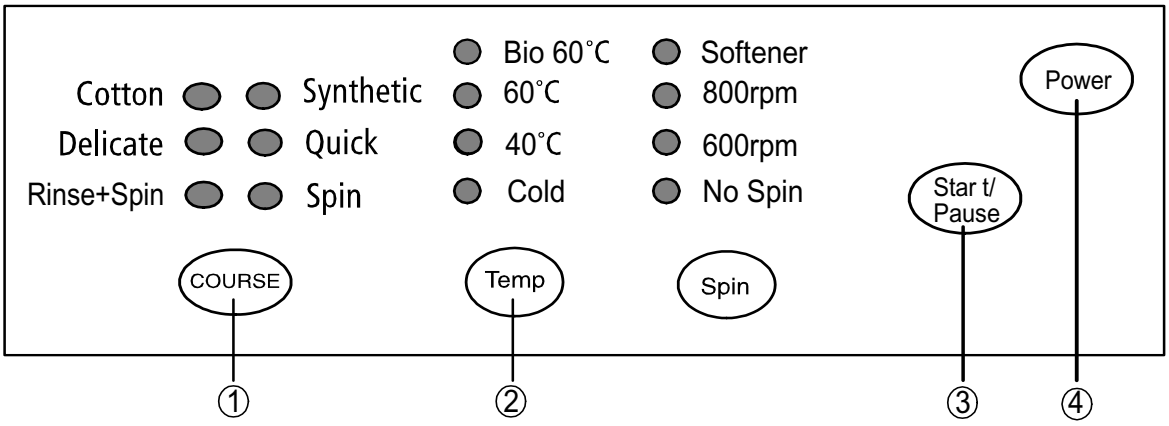


8-2-7. Checking The Tacho Part


Have The Motor Turn In Hand
Is The Rectangular Curve In The Micom 21,10th ?
NO
Check The Surroundings Circuit And TR13
YES
Exchange The Motor



9. Test Mode



1. Driving Compartment Test Mode

A. Hold down "1" and "2" keys simultaneously and then press POWER S/W "4" on.

B. The driving compartment can be tested when you press "3" key right after entering into the initial stage of the TEST MODE.

• Driving Compartment Test

COLD VALVE ON(0.3sec) → [OFF(0.3sec) →
Pump MOTOR ON(0.3sec) → OFF(0.3sec) → MOTOR Left (0.5sec) → OFF(0.5 sec) →
MOTOR Right (0.5sec) → OFF(0.3sec) → HEATER RELAY ON(0.3sec) → OFF(0.3sec) → DOOR OPEN
(Function continues when door is closed)